Rec'd PCT/PTC 1 9 JUL 2004)



REQUEST

| e use only |
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| |
| Γ International Application" |
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| The undersigned requests that the preser international application be processed according to the Patent Cooperation Trea | | Name of receiving C | Office and "PCT Inte | rnational Application" |
|--|---------------------------------------|--|--|--|
| according to the Fatent Cooperation From | | Applicant's or agent (if desired) (12 chard | 's file reference | P51205C WO |
| Box No. I TITLE OF INVENTION MODULATORS | | | | |
| Box No. II APPLICANT | This persor | is also inventor | | |
| Name and address: (Family name followed by given name The address must include postal code and name of country. Box is the applicant's State (that is, country) of residence if no | i ne country of in | ie aaaress inaicaieu in in | n. Telephone No. | |
| Bookham Technology plc | · | | Facsimile No. | |
| 90 Milton Park Abingdon | | , , | Teleprinter No. | |
| Oxon OX14 4RY | ٠ | | Applicant's regis | stration No. with the Office |
| State (that is, country) of nationality: GB | | State (that is, count GB | ry) of residence: | |
| This person is applicant for the purposes of: | all designated the United St | i States except ates of America | the United States of America only | the States indicated in the Supplemental Box |
| Box No. III FURTHER APPLICANT(S) AND | OR (FURTI | HER) INVENTOR(S | 5) | |
| Name and address: (Family name followed by given name, The address must include postal code and name of country. Box is the applicant's State (that is, country) of residence if no. WALKER, Robert Graham 30 Broadmead Avenue Northampton Northants. NN3 2QY G.B. | I he country of it | ie aaaress inaicaiea in ir | applicar applicar inventor is market | nt only nt and inventor r only (If this check-box ed, do not fill in below.) stration No. with the Office |
| State (that is, country) of nationality: GB | | State (that is, count GB | ry) of residence: | |
| This person is applicant for the purposes of: | all designated the United St | i States except ates of America | the United States of America only | the States indicated in the Supplemental Box |
| Further applicants and/or (further) inventors a | re indicated o | n a continuation shee | t. | |
| Box No. IV AGENT OR COMMON REPRES | ENTATIVE; | OR ADDRESS FO | OR CORRESPOND | ENCE |
| The person identified below is hereby/has been apper of the applicant(s) before the competent International | ointed to act o | n behalf as: | | common representative |
| Name and address: (Family name followed by given name, The address must include postal code | ; for a legal entit and name of co | ty, full official designatio nuntry.) | n. Telephone No. +44 1865 8 | 341060 |
| CLAYTON-HATHWAY, Anthony Ni Fry Heath & Spence LLP | cholas | | Facsimile No. +44 1293 7 | 776837 |
| The Gables Massetts Road | | | Teleprinter No. | |
| Horley, Surrey RH6 7DQ, GB | | | Agent's registrat | ion No. with the Office |
| Address for correspondence: Mark this chec space above is used instead to indicate a speci | ck-box where | no agent or common which correspondence | representative is/has e should be sent. | been appointed and the |



Sheet No. ...2...

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|---|--|

| | m ton management | INVENTOR(S) |
|--|-------------------------------------|---|
| Continuation of Box No. III FURTHER APPLICANT(S) A | | |
| If none of the following sub-boxes is used, this sheet should not | be included in the req | ruest. |
| Name and address: (Family name followed by given name; for a legal entity The address must include postal code and name of country. The country of the Box is the applicant's State (that is, country) of residence if no State of residence | | This person is: applicant only |
| CARTER, Andrew Cannon | | applicant and inventor |
| 32A Stoke Road | | inventor only (If this check-box is marked, do not fill in below.) |
| Blisworth | | |
| Northampton NN7 3BZ, G.B. | | Applicant's registration No. with the Office |
| State (that is, country) of nationality: GB | State (that is, country, GB | |
| This person is applicant all designated all designated | States except tes of America | the United States of America only the Supplemental Box |
| Name and address: (Family name followed by given name; for a legal entity The address must include postal code and name of country. The country of the Box is the applicant's State (that is, country) of residence if no State of residence | | This person is: applicant only applicant and inventor |
| | | inventor only (If this check-box is marked, do not fill in below.) |
| | | Applicant's registration No. with the Office |
| State (that is, country) of nationality: | State (that is, country | e) of residence: |
| This person is applicant all designated for the purposes of: | States except ates of America | the United States of America only the States indicated in the Supplemental Box |
| Name and address: (Family name followed by given name; for a legal entit The address must include postal code and name of country. The country of th Box is the applicant's State (that is, country) of residence if no State of residence | | This person is: applicant only applicant and inventor inventor only (If this check-box is marked, do not fill in below.) Applicant's registration No. with the Office |
| State (that is, country) of nationality: | State (that is, country | y) of residence: |
| · | <u> </u> | the United States the States indicated in |
| This person is applicant for the purposes of: all designated the United States all designated the United States | States except ates of America | the United States of America only the States indicated in the Supplemental Box |
| Name and address: (Family name followed by given name; for a legal enti The address must include postal code and name of country. The country of the Box is the applicant's State (that is, country) of residence if no State of residence | | This person is: applicant only applicant and inventor inventor only (If this check-box is marked, do not fill in below.) Applicant's registration No. with the Office |
| | Jane What is south | |
| State (that is, country) of nationality: | State (that is, country | |
| This person is applicant for the purposes of: all designated States all designated the United States | d States except tates of America | the United States of America only the Supplemental Box |
| Further applicants and/or (further) inventors are indicated of | on another continuation | n sheet. |





Box No. V DESIGNATION OF STATES

Mark the applicable check-boxes below; at least one must be marked

| D |) X 14 | 0. V DESIGNATION OF STATES | Mark the applicable check-boxes below, at least one mast be marked | ·- |
|----------|---------------|--|---|---|
| Tì | ne fo | ollowing designations are hereby made | nder Rule 4.9(a): | |
| | | onal Patent | | |
| X | AI | P ARIPO Patent: GH Ghana, G SL Sierra Leone, SZ Swaziland, T State which is a Contracting State specify on dotted line) | I Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambiqu United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe of the Harare Protocol and of the PCT (if other kind of protection or tree | e, and any other atment desired, |
| X | I EA | RU Russian Federation, TJ Tajikis Patent Convention and of the PCT | Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republan, TM Turkmenistan, and any other State which is a Contracting State of | of the Eurasian |
| | EF | Republic, DE Germany, DK Denn IE Ireland, IT Italy, LU Luxembour any other State which is a Contract | Belgium, BG Bulgaria, CH & LI Switzerland and Liechtenstein, CY Cyprk, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdor, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, SK Slovakia, Ing State of the European Patent Convention and of the PCT | n, GR Greece, TR Turkey, and |
| X | OA | GA Gabon, GN Guinea, GQ Equa TD Chad, TG Togo, and any other | J Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, Corial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Nige tate which is a member State of OAPI and a Contracting State of the PC ecify on dotted line) | r, SN Senegal, T <i>(if other kind</i> |
| Na | ation | nal Patent (if other kind of protection | or treatment desired, specify on dotted line): | |
| X | ΑE | United Arab Emirates | ☐ GM Gambia ☐ NZ New Zealand | |
| X | AG | Antigua and Barbuda | HR Croatia MOM Oman | |
| X | \mathbf{AL} | Albania | HU Hungary | |
| X | AM | I Armenia | ID Indonesia PL Poland | |
| X | AT | `Austria | IL Israel PT Portugal | |
| X | \mathbf{AU} | Australia | IN India RO Romania | |
| X | ΑZ | Azerbaijan | IS Iceland RU Russian Federation | |
| X | BA | Bosnia and Herzegovina | JP Japan | |
| X | вв | Barbados | KE Kenya SD Sudan | |
| K) | \mathbf{BG} | Bulgaria | KG Kyrgyzstan | |
| X | BR | Brazil | KP Democratic People's Republic SG Singapore | |
| K | BY | Belarus | of Korea | |
| K | ΒZ | Belize | KR Republic of Korea | |
| | | Canada | KZ Kazakhstan | |
| | | & LI Switzerland and Liechtenstein | LC Saint Lucia TJ Tajikistan | |
| X | CN | China | LK Sri Lanka TM Turkmenistan | |
| X | CO | Colombia | LR Liberia IN Tunisia | |
| X | CR | Costa Rica | LS Lesotho | |
| | | Cuba | | D |
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| X | DE | Germany | LV Latvia TZ United Republic of | |
| X | DK | Denmark | MA Morocco | |
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| | | Algeria | US United States of An | nerica |
| | EC | Ecuador | MG Madagascar | |
| X | EE | Estonia | MK The former Yugoslav Republic of 🔀 UZ Uzbekistan | |
| | | Spain | Macedonia 🔀 VN Viet Nam | |
| | | Finland | MN Mongolia XU Yugoslavia | |
| K | GB | | MWMalawi ZA South Africa | |
| | GD | Grenada | MX Mexico ZM Zambia | |
| | ĠE | Georgia | MZ Mozambique | |
| K | GH | Ghana | NO Norway | |
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| he | ck-b | ooxes below reserved for designating S | ates which have become party to the PCT after issuance of this sheet: | |
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Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)



If the Supplemental Box is not used, this sheet should not be included in the request.

Supplemental Box

- I. If, in any of the Boxes, except Boxes Nos. VIII(i) to (v) for which a special continuation box is provided, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No..." (indicate the number of the Box) and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:
- (i) if more than two persons are to be indicated as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;
- (ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. III and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;
- (iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. II" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;
- (iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;
- (v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;
- (vi) if, in Box No. VI, there are more than five earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI.
- If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

CONTINUATION OF BOX IV:

Additional Representatives:

FRY, Alan Valentine,

DOWNING, Michael Philip

UNWIN, Stephen Geoffrey,

TOWNSEND, Victoria Jayne,

LOCK, Graham James,

BODEN, Keith McMurray

all of:

Fry Heath & Spence LLP The Gables Massetts Road Horley, Surrey RH6 7DQ, GB

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| Sheet | Νo | | 5 | |
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| M M. AM MUNAVANIM | VCLAIM | | | , | | |
|---|---|--|---|---|--|--|
| Box No. VI PRIORIT | | | | | | |
| The priority of the following earlier application(s) is hereby claimed: | | | | | | |
| Filing date | Number of earlier application | | Vhere earlier application | | | |
| of earlier application (day/month/year) | or earner application | national application: country or Member of WTO | regional application:* regional Office | international application: receiving Office | | |
| item (1) 19 January 2002 (19/01/02) | 0201203.7 | G.B. | | | | |
| item (2) | | | | | | |
| item (3) | | | | | | |
| item (4) | |) | | | | |
| item (5) | | | | | | |
| Further priority claim | s are indicated in the Suppleme | ental Box. | | | | |
| The receiving Office is recif the earlier application we | quested to prepare and transmit as filed with the Office which for | to the International Bureau | a a certified copy of the entional application is the r | earlier application(s) (only ecceiving Office) identified | | |
| | n (1) item (2) | item (3) item | ., | other, see Supplemental Box | | |
| * Where the earlier application Industrial Property or one | ntion is an ARIPO application, it Member of the World Trade Or | rganization jor which that e | eartier application was ju | ention for the Protection of led (Rule 4.10(b)(ii)): | | |
| | | | | | | |
| | ATIONAL SEARCHING AU | | | | | |
| Choice of International Sinternational search, indica | searching Authority (ISA) (if in the the Authority chosen; the two | two or more International S 5-letter code may be used): | Searching Authorities are | competent to carry out the | | |
| ISA / | | | | the an nagrounded from the | | |
| Request to use results of International Searching Au | earlier search; reference to t | that search (if an earlier se | earch has been carried or | it by or requested from the | | |
| Date (day/month/year) | Numl | ber Coun | atry (or regional Office) | | | |
| Box No. VIII DECLAR. | ATIONS | | | | | |
| The following declaration check-boxes below and indi | as are contained in Boxes Nos. | VIII (i) to (v) (mark the a mber of each type of declar | pplicable ation): | Number of declarations | | |
| Box No. VIII (i) | Declaration as to the identi | ty of the inventor | | : | | |
| Box No. VIII (ii) | Declaration as to the appli date, to apply for and be g | cant's entitlement, as at th ranted a patent | e international filing | : | | |
| Box No. VIII (iii) | Declaration as to the appl date, to claim the priority | icant's entitlement, as at t of the earlier application | he international filing | : | | |
| Box No. VIII (iv) | Declaration of inventorshi United States of America) | p (only for the purposes of | f the designation of the | : | | |
| Box No. VIII (v) | Declaration as to non-prej | udicial disclosures or exce | ptions to lack of novelty | · : | | |





DECLARATION: INVENTORSHIP (only for the purposes of the designation of the United States of America) Box No. VIII (iv)

The declaration must conform to the following standardized wording provided for in Section 214; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No.VIII (iv). If this Box is not used, this sheet should not be included in the request.

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv))

| for the purposes of the designation of | of the United States of America: |
|---|---|
| I hereby declare that I believe I am the original, first and sole (if only is listed below) inventor of the subject matter which is claimed and | one inventor is listed below) or joint (if more than one inventor for which a patent is sought. |
| This declaration is directed to the international application of which | it forms a part (if filing declaration with application). |
| This declaration is directed to international application No. PCT/ to Rule $26ter$). | (if furnishing declaration pursuant |
| I hereby declare that my residence, mailing address, and citizenship | are as stated next to my name. |
| I hereby state that I have reviewed and understand the contents of the of said application. I have identified in the request of said application, and I have identified below, under the heading "Prior Applications," Organization, day, month and year of filing, any application for a pater States of America, including any PCT international application designs having a filing date before that of the application on which foreign p | in compliance with PCT Rule 4.10, any claim to foreign priority, by application number, country or Member of the World Trade at or inventor's certificate filed in a country other than the United ating at least one country other than the United States of America, priority is claimed. |
| Prior Applications: GB 0201203.7 - 19 January 200 | 2 |
| | |
| I hereby acknowledge the duty to disclose information that is k 37 C.F.R. § 1.56, including for continuation-in-part applications, mate of the prior application and the PCT international filing date of the | erial information which became available between the filing date |
| I hereby declare that all statements made herein of my own knowledge are believed to be true; and further that these statements were made a made are punishable by fine or imprisonment, or both, under Section false statements may jeopardize the validity of the application or any | with the knowledge that willful false statements and the like so 1001 of Title 18 of the United States Code and that such willful |
| Name: WALKER, Robert Graham | |
| N. H. was town O.D. | |
| Mailing Address: 30 Broadmead Avenue, Northampton, NN | 13 2QY |
| Citizenship: British Inventor's Signature: | Date: |
| Name: | |
| Residence: | |
| Mailing Address: 32A Stoke Road, Blisworth, Northampton | , NN7 3BZ |
| Citizenship: British Inventor's Signature: A C C C C C C C C C C C C C C C C C C | Date: 13/01/03 (of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26ter after the filing of the international application) |
| This declaration is continued on the following sheet, "Continuation of the following sheet," | on of Box No. VIII (iv)". |

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|-------|----|--|---|--|
| Sheet | No | | 1 | |

| Box No. IX CHECK LIST; LANGUAGE | OF FILING | |
|--|--|--------------------|
| This international application contains: (a) the following number of sheets in paper form: | This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item): | Number of items |
| request (including | 1. 🔀 fee calculation sheet | 1 |
| declaration sheets) : 7 | 2. original separate power of attorney : | |
| description (excluding sequence listing part) : 21 | 3. original general power of attorney | |
| claims : 4 | 4. Copy of general power of attorney; reference number, if any: | 3 |
| abstract : 1 | • | ĭ |
| drawings : 13 | 5. statement explaining lack of signature : | |
| Sub-total number of sheets: 46 | 6. priority document(s) identified in Box No. VI as item(s): | |
| sequence listing part of description (actual number of sheets if filed in paper | 7. translation of international application into (language): | |
| form, whether or not also filed in computer readable | 8. separate indications concerning deposited microorganism or other biological material | |
| form; see (b) below) : 46 | 9. sequence listing in computer readable form (indicate also type and number of carriers (diskette, CD-ROM, CD-R or other)) | |
| (b) sequence listing part of description filed in computer readable form | (i) ☐ copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application) | |
| (i) only (under Section 801(a)(i)) | (ii) \(\sigma\) (only where check-box (b)(i) or (b)(ii) is marked in left | |
| (ii) ☐ in addition to being filed in paper form (under Section 801(a)(ii)) | column) additional copies including, where applicable, the copy for the purposes of international search under | |
| Type and number of carriers (diskette, CD-ROM, CD-R or other) on which the | Rule 13 <i>ter</i> (iii) together with relevant statement as to the identity | |
| sequence listing part is contained (additional | of the copy or copies with the sequence listing part | |
| copies to be indicated under item 9(ii), in right column): | mentioned in left column | |
| | 10. other (specify): | |
| Figure of the drawings which should accompany the abstract: Figure 7 | Language of filing of the international application: English | |
| Next to each signature, indicate the name of the person signature. CLAYTON-HATHWAY, Anthony Nichol | | g the request). |
| Date of actual receipt of the purported | For receiving Office use only 2. Dra | wings: |
| international application: | | ceived: |
| Corrected date of actual receipt due to later b timely received papers or drawings completing the purported international application: | ng | |
| 4. Date of timely receipt of the required corrections under PCT Article 11(2): | no | t received: |
| 5. International Searching Authority (if two or more are competent): ISA / | 6. Transmittal of search copy delayed until search fee is paid | |
| | For International Bureau use only | |
| Date of receipt of the record copy by the International Bureau: | • | |